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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/616,448

07/08/2003

Jeffry G. Weers

0103.11

1036

21968 7590 04/16/2008  
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EXAMINER

ARNOLD, ERNST V

ART UNIT

PAPER NUMBER

1616

MAIL DATE

DELIVERY MODE

04/16/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/616,448	<b>Applicant(s)</b> WEERS ET AL.	
	<b>Examiner</b> ERNST V. ARNOLD	<b>Art Unit</b> 1616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-5,11-15 and 21-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,11-15 and 21-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 November 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

The indicated allowability of claims 1, 3-5, 11-15 and 21-34 is withdrawn in view of the new grounds of rejection. This Action is non-final.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 3-5, 11-15 and 21-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schulz et al. (US 6,116,237) in view of Hanes et al. (US 5,855,913) and Radhakrishnan (US 5,049,389).

Applicant claims a method for the pulmonary administration of a dry powder composition.

**Determination of the scope and content of the prior art**

**(MPEP 2141.01)**

Schulz et al. teach in claims 1-12 methods for inhalation of dry powder drug. The drug composition can have an inert carrier column 3, lines 65-67 and claim 7). Claim 12 is reproduced below:

12. A method for inhalation of a dry powder drug, comprising the steps of:

- a) providing a dry powder drug composition having a drug particle size of from about 1–7 microns and mass median aerodynamic diameter of the delivered aerosol of from about 3 to 6 microns;
- b) loading the dry powder drug composition into an inhaler which is generally flow rate independent, and with the inhaler having an inspiration flow resistance of about 0.12 to 0.21 (cm H<sub>2</sub>O)<sup>1/2</sup> over the range of about 10–60 L/min;
- c) inhaling the drug composition from the inhaler with an inspiration flow rate of about 15–60 L/min, resulting in a delivery efficiency measured by respirable fraction of at least 20%.

Hanes et al. teach in claim 1:

1. A particulate composition for drug delivery to the pulmonary system comprising:

biodegradable particles incorporating a therapeutic, prophylactic or diagnostic agent and a surfactant, wherein the particles have a tap density less than 0.4 g/cm<sup>3</sup> and a mean diameter between 5 μm and 30 μm effective to yield an aerodynamic diameter of the particles of between approximately one and three microns.

Hanes et al. teach phospholipids as the surfactant in claims 14-17:

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14. The composition of claim 1 wherein the surfactant is selected from the group consisting of a fatty acid, a phospholipid, and a poloxamer.

15. The composition of claim 1 wherein the surfactant is a phosphoglyceride.

16. The composition of claim 1 wherein the surfactant is dipalmitoyl L- $\alpha$ -phosphatidylcholine.

Hanes et al. teach any surfactant known in the art can work in column 5, lines 39-47:

Surfactants known in the art can be used including any naturally occurring lung surfactant. Other exemplary surfactants include diphosphatidyl glycerol (DPPG); hexadecanol; fatty alcohols such as polyethylene glycol (PEG); polyoxyethylene-9-lauryl ether; a surface active fatty acid, such as palmitic acid or oleic acid; sorbitan trioleate (Span 85); glycocholate; surfactin; a poloxomer; a sorbitan fatty acid ester such as sorbitan trioleate; tyloxapol and a phospholipid.

Hanes et al. teach porous microparticles (column 16, lines 25-35, for example).

Hanes et al. teach a wide variety of therapeutic agents including parathyroid hormone and leuprolide (column 10, lines 37-49 and claim 25).

Radhakrishnan teach inhalation method for treatment of lung diseases with tobramycin and other actives (claims 13, 15, 18 and 20).

### **Ascertainment of the difference between the prior art and the claims**

#### **(MPEP 2141.02)**

1. The difference between the instant application and Schulz et al. is that Schulz et al. do not expressly teach a lipid matrix that comprises phospholipids or hollow

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porous microparticles. This deficiency in Schulz et al. is cured by the teachings of Hanes et al.

2. The difference between the instant application and Schulz et al. is that Schulz et al. do not expressly teach an active agent selected from the group consisting of budesonide, tobramycin sulfate, leuprolide acetate, amphotericin B and parathyroid hormone. This deficiency in Schulz et al. is cured by the teachings of Hanes et al. and Radhakrishnan.

### **Finding of prima facie obviousness**

#### **Rational and Motivation (MPEP 2142-2143)**

1. It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to use hollow porous phospholipid inert carriers in the method of Schulz et al., as suggested by Hanes et al., and produce the instant invention.

One of ordinary skill in the art would have been motivated to do this because: 1) Schulz et al. do not specify the type of drug carrier and Hanes et al. provide the nexus teaching to use phospholipids and 2) Hanes teaches that porosity affects the tap density which in turn regulates the aerodynamics and increasing porosity permits delivery of larger particle envelope volumes into the lungs (column 9, lines 2-12 and 19-25 and general discussions in this column), which is a desirable feature with inhaled medications.

With regard to the Anderson Cascade Impaction or multi-stage liquid impinger limitations, it is the Examiner's position that the art used an equivalent method to arrive with values within the instantly claimed range. Lung deposition amounts are merely a matter of routine optimization of the amounts taught by Schulz et al.

2. It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to select actives from the group consisting of budesonide, tobramycin sulfate, leuprolide acetate, amphotericin B and parathyroid hormone in the method of Schulz et al., as suggested by Hanes et al. and Radhakrishnan, and produce the instant invention.

One of ordinary skill in the art would have been motivated to do this because these actives are taught for pulmonary administration. Selection of the sulfate salt of tobramycin is merely a matter of judicious selection by one of ordinary skill in the art.

A reference is good not only for what it teaches by direct anticipation but also for what one of ordinary skill in the art might reasonably infer from the teachings. (*In re Opprecht* 12 USPQ 2d 1235, 1236 (Fed Cir. 1989); *In re Bode* 193 USPQ 12 (CCPA) 1976).

In light of the forgoing discussion, the Examiner concludes that the subject matter defined by the instant claims would have been obvious within the meaning of 35 USC 103(a).

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole was *prima facie* obvious to one of

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ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 3-5, 11-15 and 21-34 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 44-48 and 51-53 of copending Application No. 09/851,226 in view of (US 6,116,237) and Hanes et al. (US 5,855,913). The copending application teaches methods of delivering an active agent to the respiratory tract of the patient with particles having a mass median diameter of less than 20 microns; an aerodynamic diameter of less than 10 microns; a bulk density of less than 0.5 g/cm<sup>3</sup>; the active can be tobramycin and the particles are hollow and porous. The copending application does not expressly disclose



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the resistance of the dry powder inhaler or hollow porous particles. This deficiency is cured by the teachings of Schulz et al. and Hanes et al. which are discussed in detail above and those discussions are hereby incorporated by reference. One of ordinary skill in the art would have recognized the obvious variation of the instant invention over the copending application and Schulz et al. and Hanes et al. and would have had a reasonable expectation of success using the inhaler of Schulz et al.

Claims 1, 3-5, 11-15 and 21-34 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 4-7, 22 and 36-38 of copending Application No. 10/141,219 (now revived) in view of (US 6,116,237). The copending application teaches methods for administering a dry powder composition comprised of leupolide and phospholipid with a median diameter of between 0.5-4 microns, aerodynamic diameter of less than 5 microns, bulk density of about 0.5 g/cm<sup>3</sup>, dry powder inhaler, emitted dosages, and various phospholipids. The copending application does not expressly disclose the resistance of the dry powder inhaler or hollow porous particles. This deficiency is cured by the teachings of Schulz et al. and Hanes et al. which are discussed in detail above and those discussions are hereby incorporated by reference. One of ordinary skill in the art would have recognized the obvious variation of the instant invention over the copending application and Schulz et al. and Hanes et al. and would have had a reasonable expectation of success using the inhaler of Schulz et al.

Claims 1, 3-5, 11-15 and 21-34 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 23-

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25, 29 and 30 of copending Application No. 11/187,757 in view of (US 6,116,237). The copending application is drawn to methods for treating a patient comprising administering particulates via inhalation having a mass median diameter of less than 20 microns, lipid matrix, amphotericin B, and a geometric diameter of less than 3 microns. The copending application does not expressly disclose the resistance of the dry powder inhaler or hollow porous particles. This deficiency is cured by the teachings of Schulz et al. and Hanes et al. which are discussed in detail above and those discussions are hereby incorporated by reference. One of ordinary skill in the art would have recognized the obvious variation of the instant invention over the copending application and Schulz et al. and Hanes et al. and would have had a reasonable expectation of success using the inhaler of Schulz et al.

This is a provisional obviousness-type double patenting rejection.

Claims 1, 3-5, 11-15 and 21-34 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4, 6-15, 17-19, 21-24, 26-34, 36-38, and 39-57 of U.S. Patent No. 7,306,787 in view of US 6,116,237. The patented claims are drawn to a method of delivering a therapeutic dose of a bioactive agent to the pulmonary air passages. Phospholipids and actives as instantly claimed are taught. The US Patent does not expressly disclose the resistance of the dry powder inhaler or hollow porous particles. This deficiency is cured by the teachings of Schulz et al. and Hanes et al. which are discussed in detail above and those discussions are hereby incorporated by reference. One of ordinary skill in the art would have recognized the obvious variation of the instant invention over the patented claims

and Schulz et al. and Hanes et al. and would have had a reasonable expectation of success using the inhaler of Schulz et al.

### ***Conclusion***

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ernst V. Arnold whose telephone number is 571-272-8509. The examiner can normally be reached on M-F (6:15 am-3:45 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Art Unit 1616

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/Johann R. Richter/

Supervisory Patent Examiner, Art Unit 1616